

Consumer Behavior

Previous chapters explained that consumers typically buy more of a product as its price decreases and less of a product as its price increases. Chapter 7 looks behind this law of demand to explain why consumers behave this way.

The chapter first explains the **law of diminishing marginal utility** and uses it to explain why the demand curve slopes downward. This explanation is based on the concept of marginal utility. In this view, the additional satisfaction (or marginal utility) that a consumer obtains from the consumption of each additional unit of a product will tend to decline; therefore a consumer will have an incentive to purchase additional units of a product only if its price falls. (Another explanation of the law of demand that is more complete, but more complex, is based on indifference curves and is presented in the appendix to this chapter.)

Most of this chapter presents the **marginal-utility** view of consumer behavior. This explanation requires that you first understand the concepts and assumptions on which this theory of consumer behavior rests, and second, do some rigorous reasoning using these concepts and assumptions. It is an exercise in logic, but be sure that you follow the reasoning. To help you, the text provides several numerical examples for you to follow.

No one believes that consumers actually perform these mental gymnastics before they spend their incomes or make purchases. But we study the marginal-utility approach to consumer behavior because the consumers behave as if they made their purchases on the basis of very fine calculations. Thus, this approach explains what we do in fact observe and makes it possible for us to predict with a good deal of precision how consumers will react to changes in their incomes and the prices of products.

The final section of the chapter describes how the theory of consumer behavior can be used to explain many economic events in the real world. The five applications discussed are the takeover by iPods of the market for recorded music, the water–diamond paradox, the value of time in consumption, the reasons for increased consumer purchases of medical care, and the economic effects of cash and noncash gifts. Be sure you understand how consumer theory is used to explain these five phenomena.

■ CHECKLIST

When you have studied this chapter you should be able to

- ☐ Describe the law of diminishing marginal utility.
- ☐ Define utility, marginal utility and total utility.

- ☐ Explain the relationship of the law of diminishing marginal utility to demand.
- ☐ List four dimensions of the typical consumer's situation.
- ☐ State the utility-maximizing rule.
- ☐ Use the utility-maximizing rule to determine how consumers would spend their fixed incomes when given the utility and price data.
- ☐ Explain how a consumer decides between an optimal solution and an inferior solution to a utility-maximization problem.
- ☐ Give an algebraic restatement of the utility-maximizing rule based on an example using two products, A and B.
- ☐ Derive a consumer's demand schedule for a product from utility, income, and price data.
- ☐ Explain how the income and substitution effects are involved in utility maximization and the deriving of the demand curve for a product.
- ☐ Give examples of how consumer theory can be used to explain such economic situations as the: popularity of iPods; diamond–water paradox; value of time in consumption; consumer purchases of medical care; and, trade-offs between cash and noncash gifts.
- ☐ Use insights from behavioral economics to explain decisions about consuming M&M's, preparing for final exams, and saving for retirement (Last Word).

■ CHAPTER OUTLINE

1. The **law of diminishing marginal utility** can be used to explain why the demand curve slopes downward.
 - a. **Utility** is subjective and difficult to quantify. For the purposes of this chapter it will be assumed that utility is the satisfaction or pleasure a person gets from consuming a product. It will be measured in hypothetical units called *utils*.
 - b. **Total utility** is the total amount of satisfaction that a consumer obtains from consuming a product. **Marginal utility** is the extra satisfaction that a consumer obtains from consuming an additional or extra unit of a product. The principle that the marginal utility of a product falls as a consumer uses (consumes) additional units of a product is the law of diminishing marginal utility. There is a relationship between total and marginal utility. As shown in text Figure 7.1, total utility increases, but at a decreasing rate until it reaches a maximum and then declines. Marginal utility decreases as total utility increases. When total utility reaches a maximum, marginal utility is zero. When total utility declines, marginal utility is negative.

c. The law of diminishing marginal utility explains why the demand curve for a product slopes downward. As more and more of a product is consumed, each additional unit consumed provides less satisfaction. The consumer will only buy more of a product if the price falls.

2. The law of diminishing marginal utility is also the basis of the **theory of consumer behavior** that explains how consumers will spend their incomes for particular goods and services.

a. In the simple case, it is assumed that the typical consumer engages in **rational behavior**, knows marginal-utility schedules for the various goods available (has preferences), has a limited money income to spend (a **budget constraint**), and must pay a price to acquire each of the goods that yields utility.

b. Given these assumptions, the consumer maximizes the total utility obtained when the marginal utility of the last dollar spent on each product is the same for all products (the **utility-maximizing rule**). When the consumer follows this rule, he or she has achieved **consumer equilibrium** and has no incentive to change expenditures.

c. A numerical example is used to illustrate the rule using two products, A and B, and assuming that all money income is spent on one of the two products. In making the decision, the rational consumer must compare the extra or marginal utility from each product with its added cost (as measured by its price). Thus, marginal utility is compared on a per dollar basis.

d. The allocation rule states that consumers will maximize their satisfaction when they allocate their money income so that the last dollar spent on each product yields the same marginal utility. In the two-product case, this can be stated algebraically as

$$\frac{\text{Marginal utility of A}}{\text{Price of A}} = \frac{\text{Marginal utility of B}}{\text{Price of B}}$$

Total utility is a maximum when the marginal utility of the last unit of a product purchased divided by its price is the same for all products.

3. The utility-maximizing rule can be applied to determine the amount of the product the consumer will purchase at different prices with income, tastes, and the prices of other products remaining constant.

a. The numerical example that is used is based on one price for a product. If the price of the product falls, it is possible to use the utility-maximizing rule to determine how much more of the product the consumer will purchase. Based on this exercise it is possible to show the inverse relationship between price and quantity demanded as shown by a demand curve.

b. Utility maximization can also be understood in terms of the **income** and **substitution effects** to explain the law of demand. As the price of a product drops, a consumer increases the amounts purchased to restore equilibrium following the utility-maximizing rule. The change can be viewed as the consumer substituting more of the now less expensive product for another product and having more real income to spend.

4. Five of the many **applications** and **extensions** of consumer theory for the real world are discussed in this chapter.

a. iPods have gained popularity among consumers relative to portable CD players because many consumers have concluded that iPods have a higher ratio of marginal utility to price than the ratio for portable CD players.

b. Diamonds are high in price, but of limited usefulness, while water is low in price, but essential for life. This diamond-water paradox is explained by distinguishing between marginal and total utility. Water is low in price because it is generally in plentiful supply and thus has low marginal utility. Diamonds are high in price because they are relatively scarce and thus have high marginal utility. Water, however, is considered more useful than diamonds because it has much greater total utility.

c. The facts that consumption takes time and time is a scarce resource can be included in the marginal-utility theory. The full price of any consumer good or service is equal to its market price plus the value of time taken to consume it (i.e., the income the consumer could have earned had he or she used that time for work).

d. Expenditures on medical care have increased because of its financing through insurance. Under this system, the consumer does not pay the full price of medical care services and thus has an incentive to consume more than would be the case if the consumer paid the full price.

e. Cash gifts tend to be more efficient for consumers because they are more likely to match consumer preferences and increase the total utility compared to noncash gifts that restrict consumer choice.

5. (Last Word). Studies in behavioral economics offer further insights about consumer choices than what is provided by the standard theory of consumer behavior. Experiments with M&M's indicate that diminishing marginal utility sets in more slowly when there is more product variety. Consumers also show time inconsistency in their decision making. For example, students attach less value to postponing a final exam by one day at the beginning of semester than they do at the end of the semester. And saving for retirement is more highly valued near retirement than early in a career. To counter this time inconsistency problem with retirement savings, legislation has been passed to encourage employers to enroll workers automatically in a retirement plan when they start working for a business.

■ HINTS AND TIPS

1. **Utility** is simply an abstraction useful for explaining consumer behavior. Do not become overly concerned with the precise measurement of utility or satisfaction. What you should focus on is the relative comparison of the additional satisfaction (marginal utility) from a dollar spent on one good to the additional satisfaction obtained from a dollar spent on another good. The choice of producing more additional utility satisfaction from one good than the other will maximize consumer satisfaction. Thus, you just

need to know which good won the contest, not the final score (how much additional utility was added).

2. Master the difference between marginal utility and total utility. Once you think you understand the difference, use the concepts to explain to someone the diamond-water paradox at the end of the chapter.

3. The utility-maximization model provides insights about the income and substitution effects that occur with a change in price. For most products, a price decrease gives consumers more income to spend on that product and other products, so the quantity demanded for that product increases. The three steps in the logic for a typical product A are (1) $P_A \downarrow$, (2) income \uparrow , and (3) $Q_{dA} \uparrow$. A price decrease also makes product A more attractive to buy relative to its substitutes, so the demand for these substitutes decreases and the quantity demanded for product A increases. Again, there are three steps in the logic: (1) $P_A \downarrow$, (2) demand for substitutes \downarrow , and (3) $Q_{dA} \uparrow$. In both cases, the end result is the same: $Q_{dA} \uparrow$. Practice your understanding by showing the logic for an increase in the price of product A.

■ IMPORTANT TERMS

law of diminishing marginal utility	budget constraint
utility	utility-maximizing rule
total utility	consumer equilibrium
marginal utility	income effect
rational behavior	substitution effect

SELF-TEST

■ FILL-IN QUESTIONS

1. The reason that demand curves slope downward can be explained by the law of (comparative advantage, diminishing marginal utility) _____.

2. The overall satisfaction a consumer gets from consuming a good or service is (marginal, total) _____ utility, but the extra or additional satisfaction that a consumer gets from a good or service is (marginal, total) _____ utility.

3. Utility is (an objective, a subjective) _____ concept and (is, is not) _____ the same thing as usefulness.

4. The law of diminishing marginal utility states that marginal utility will (increase, decrease) _____ as a consumer increases the quantity consumed of a product.

5. A graph of total utility and marginal utility shows that when total utility is increasing, marginal utility is (positive, negative) _____, and when total utility is at a maximum, marginal utility is at (a maximum, zero, a minimum) _____.

6. The marginal-utility theory of consumer behavior assumes that the consumer is (wealthy, rational)

_____ and has certain (preferences, discounts) _____ for various goods.

7. A consumer cannot buy every good and service desired because income is (subsidized, limited) _____ and goods and services are (unlimited, scarce) _____ in relation to the demand for them; thus they have (prices, quantities) _____ attached to them.

8. When the consumer is maximizing the utility the consumer's income will obtain, the ratio of the marginal utility of the (first, last) _____ unit purchased of a product to its price is (the same, greater than) _____ for all the products bought.

9. If the marginal utility of the last dollar spent on one product is greater than the marginal utility of the last dollar spent on another product, the consumer should (increase, decrease) _____ purchases of the first and _____ purchases of the second product.

10. Assume there are only two products, X and Y, that a consumer can purchase with a fixed income. The consumer is maximizing utility algebraically when:

$$\begin{array}{ll} \text{a. } \underline{\hspace{2cm}} & \text{b. } \underline{\hspace{2cm}} \\ \text{c. } \underline{\hspace{2cm}} & = \text{d. } \underline{\hspace{2cm}} \end{array}$$

11. In deriving a consumer's demand for a particular product, the two factors (other than the preferences or tastes of the consumer) that are held constant are

- a. _____
b. _____

12. The utility-maximizing rule and the demand curve are logically (consistent, inconsistent) _____. Because marginal utility declines, a lower price is needed to get the consumer to buy (less, more) _____ of a particular product.

13. A fall in the price of a product tends to (increase, decrease) _____ a consumer's real income, and a rise in its price tends to _____ real income. This is called the (substitution, income) _____ effect.

14. When the price of a product increases, the product becomes relatively (more, less) _____ expensive than it was and the prices of other products become relatively (higher, lower) _____ than they were; the consumer will therefore buy (less, more) _____ of the product in question and _____ of the other products. This is called the (substitution, income) _____ effect.

15. When consumer preferences changed from portable CD players to iPods, and the prices of iPods (increased, decreased) _____ significantly, this led to (increased, decreased) _____ purchases of iPods.

16. Water is low in price because its (total, marginal) _____ utility is low, while diamonds are high in price because their _____ utility is high.

Water, however, is more useful than diamonds because the (total, marginal) _____ utility of water is much greater than the _____ utility of diamonds.

17. The theory of consumer behavior has been generalized to account for (supply, time) _____. This is a valuable economic resource because it is (limited, unlimited) _____. Its value is (greater than, equal to) _____ the income that can be earned with it. The full price to the consumer of any product is, therefore, the market (time, price) _____ plus the value of the consumption _____.

18. With health insurance coverage, the price consumers pay for health care services is less than the "true" value or opportunity (benefit, cost) _____. The lower price to consumers encourages them to consume (more, less) _____ health care services.

19. A comparison of food consumption at an all-you-can-eat buffet with a pay-per-item cafeteria would show that people tend to eat (less, more) _____ at the buffet because the marginal utility of an extra food item is (positive, zero) _____ while its price is _____.

20. Noncash gifts are (less, more) _____ preferred than cash gifts because they yield (less, more) _____ total utility to consumers.

TRUE-FALSE QUESTIONS

Circle T if the statement is true, F if it is false.

1. Utility is the benefit or satisfaction a person receives from consuming a good or service. T F
2. Utility and usefulness are not synonymous. T F
3. Marginal utility is the change in total utility from consuming one more unit of a product. T F
4. Because utility cannot actually be measured, the marginal-utility theory cannot really explain how consumers will behave. T F
5. The law of diminishing marginal utility indicates that gains in satisfaction become smaller as successive units of a specific product are consumed. T F
6. A consumer's demand curve for a product is downsloping because total utility decreases as more of the product is consumed. T F
7. If total utility is increasing, then marginal utility is positive and may be either increasing or decreasing. T F
8. The theory of consumer behavior assumes that consumers act rationally to get the most from their money. T F
9. All consumers are subject to budget constraints. T F
10. To find a consumer's demand for a product, the price of the product is varied while tastes, income, and the prices of other products remain unchanged. T F

11. The theory of consumer behavior assumes that consumers attempt to maximize marginal utility. T F

12. If the marginal utility per dollar spent on product A is greater than the marginal utility per dollar spent on product B, then to maximize utility, the consumer should purchase less of A and more of B. T F

13. When consumers are maximizing total utility, the marginal utilities of the last unit of every product they buy are identical. T F

14. The marginal utility of product X is 15 and its price is \$5, while the marginal utility of product Y is 10 and its price is \$2. The utility-maximizing rule suggests that there should be less consumption of product Y. T F

15. In most cases, a change in incomes will cause a change in the portfolio of goods and services purchased by consumers. T F

16. An increase in the real income of a consumer will result from an increase in the price of a product the consumer is buying. T F

17. The income and substitution effects will induce the consumer to buy less of normal good Z when the price of Z increases. T F

18. A fall in the price of iPods will decrease the demand for iTunes. T F

19. The diamond-water paradox is explained by the fact that the total utility derived from water is low while the total utility derived from diamonds is high. T F

20. If a consumer can earn \$10 an hour and it takes 2 hours to consume a product, the value of the time required for the consumption of the product is \$5. T F

21. Paying \$300 to fly from one city to another may be cheaper than paying \$50 for a bus trip between the two cities when the economic value of time is taken into account. T F

22. A decrease in the productivity of labor will tend over time to increase the value of time. T F

23. One reason for the increased use of health care services is that consumers pay only part of the full price of the services. T F

24. People tend to eat more at an "all-you-can-eat buffet" because the "price" of additional items is zero but the marginal utility for these items is likely to be positive. T F

25. Noncash gifts add more to total utility than cash gifts. T F

MULTIPLE-CHOICE QUESTIONS

Circle the letter that corresponds to the best answer.

1. Utility as defined in this chapter refers to the
 - (a) usefulness of a purchased product
 - (b) value of the money a consumer spends on a good

- (c) satisfaction or pleasure from consuming a good
- (d) extra income a consumer gets from buying a good at a lower price

2. Which best expresses the law of diminishing marginal utility?

- (a) The more a person consumes of a product, the smaller becomes the utility that he receives from its consumption.
- (b) The more a person consumes of a product, the smaller becomes the additional utility that she receives as a result of consuming an additional unit of the product.
- (c) The less a person consumes of a product, the smaller becomes the utility that she receives from its consumption.
- (d) The less a person consumes of a product, the smaller becomes the additional utility that he receives as a result of consuming an additional unit of the product.

3. Summing the marginal utilities of each unit consumed will determine total

- (a) cost
- (b) revenue
- (c) utility
- (d) consumption

The following table shows a hypothetical total utility schedule for a consumer of chocolate candy bars. Use the table to answer Questions 4, 5, and 6.

Number consumed	Total utility
0	0
1	9
2	19
3	27
4	35
5	42
6	42
7	40

4. This consumer begins to experience diminishing marginal utility when he consumes the

- (a) first candy bar
- (b) second candy bar
- (c) third candy bar
- (d) fourth candy bar

5. Marginal utility becomes negative with the consumption of the

- (a) fourth candy bar
- (b) fifth candy bar
- (c) sixth candy bar
- (d) seventh candy bar

6. Based on the data, you can conclude that the

- (a) marginal utility of the fourth unit is 6
- (b) marginal utility of the second unit is 27
- (c) total utility of 5 units is 42
- (d) total utility of 3 units is 55

7. After eating eight chocolate chip cookies, you are offered a ninth cookie. You turn down the cookie. Your refusal indicates that the

- (a) marginal utility for chocolate chip cookies is negative
- (b) total utility for chocolate chip cookies is negative
- (c) marginal utility is positive for the eighth and negative for the ninth cookie
- (d) total utility was zero because you ate one cookie and refused the other

8. Which is a dimension or assumption of the marginal-utility theory of consumer behavior?

- (a) The consumer has a small income.
- (b) The consumer is rational.
- (c) Goods and services are free.
- (d) Goods and services yield continually increasing amounts of marginal utility as the consumer buys more of them.

9. A consumer is making purchases of products A and B such that the marginal utility of product A is 20 and the marginal utility of product B is 30. The price of product A is \$10 and the price of product B is \$20. The utility-maximizing rule suggests that this consumer should

- (a) increase consumption of product B and decrease consumption of product A
- (b) increase consumption of product B and increase consumption of product A
- (c) increase consumption of product A and decrease consumption of product B
- (d) make no change in consumption of A or B

10. Suppose that the prices of A and B are \$3 and \$2, respectively, that the consumer is spending her entire income and buying 4 units of A and 6 units of B, and that the marginal utility of both the fourth unit of A and the sixth unit of B is 6. It can be concluded that the consumer should buy

- (a) more of both A and B
- (b) more of A and less of B
- (c) less of A and more of B
- (d) less of both A and B

11. Robert Woods is maximizing his satisfaction consuming two goods, X and Y. If the marginal utility of X is half that of Y, what is the price of X if the price of Y is \$1.00?

- (a) \$0.50
- (b) \$1.00
- (c) \$1.50
- (d) \$2.00

Answer Questions 12, 13, and 14 based on the following table showing the marginal-utility schedules for goods X and Y for a hypothetical consumer. The price of good X is \$1 and the price of good Y is \$2. The income of the consumer is \$9.

Good X		Good Y	
Quantity	MU	Quantity	MU
1	8	1	10
2	7	2	8
3	6	3	6
4	5	4	4
5	4	5	3
6	3	6	2
7	2	7	1

12. To maximize utility, the consumer will buy

- (a) 7X and 1Y
- (b) 5X and 2Y
- (c) 3X and 3Y
- (d) 1X and 4Y

13. When the consumer purchases the utility-maximizing combination of goods X and Y, total utility will be

- (a) 36
- (b) 45
- (c) 48
- (d) 52

14. Suppose that the consumer's income increased from \$9 to \$12. What would be the utility-maximizing combination of goods X and Y?

- (a) 5X and 2Y
- (b) 6X and 3Y
- (c) 2X and 5Y
- (d) 4X and 4Y

15. A decrease in the price of product Z will

- (a) increase the marginal utility per dollar spent on Z
- (b) decrease the marginal utility per dollar spent on Z
- (c) decrease the total utility per dollar spent on Z
- (d) cause no change in the marginal utility per dollar spent on Z

Answer Questions 16, 17, 18, and 19 on the basis of the following total utility data for products A and B. Assume that the prices of A and B are \$6 and \$8, respectively, and that consumer income is \$36.

Units of A	Total utility	Units of B	Total utility
1	18	1	32
2	30	2	56
3	38	3	72
4	42	4	80
5	44	5	84

16. What is the level of total utility for the consumer in equilibrium?

- (a) 86
- (b) 102
- (c) 108
- (d) 120

17. How many units of the two products will the consumer buy?

- (a) 1 of A and 4 of B
- (b) 2 of A and 2 of B
- (c) 2 of A and 3 of B
- (d) 3 of A and 4 of B

18. If the price of A decreases to \$4, then the utility-maximizing combination of the two products is

- (a) 2 of A and 2 of B
- (b) 2 of A and 3 of B
- (c) 3 of A and 3 of B
- (d) 4 of A and 4 of B

19. Which of the following represents the demand curve for A?

(a)		(b)		(c)		(d)	
P	Q _d	P	Q _d	P	Q _d	P	Q _d
\$6	1	\$6	2	\$6	2	\$6	2
4	4	4	5	4	3	4	4

20. Kristin Hansen buys only two goods, food and clothing. Both are normal goods for Kristin. Suppose the price of food decreases. Kristin's consumption of clothing will

- (a) decrease due to the income effect
- (b) increase due to the income effect
- (c) increase due to the substitution effect
- (d) not change due to the substitution effect

21. The reason the substitution effect works to encourage a consumer to buy more of a product when its price decreases is because

- (a) the real income of the consumer has been increased
- (b) the real income of the consumer has been decreased
- (c) the product is now relatively less expensive than it was
- (d) other products are now relatively less expensive than they were

22. The price of water is substantially less than the price of diamonds because

- (a) the marginal utility of a diamond is significantly less than the marginal utility of a gallon of water
- (b) the marginal utility of a diamond is significantly greater than the marginal utility of a gallon of water
- (c) the total utility of diamonds is greater than the total utility of water
- (d) diamonds have a low marginal utility

23. The full price of a product to a consumer is

- (a) its market price
- (b) its market price plus the value of its consumption time
- (c) its market price less the value of its consumption time
- (d) the value of its consumption time less its market price

24. A consumer has two basic choices: rent a movie for \$4.00 and spend 2 hours of time watching it or spend \$15 for dinner at a restaurant that takes 1 hour of time. If the marginal utilities of the movie and the dinner are the same, and the consumer values time at \$15 an hour, the rational consumer will most likely

- (a) rent more movies and buy fewer restaurant dinners
- (b) buy more restaurant dinners and rent fewer movies
- (c) buy fewer restaurant dinners and rent fewer movies
- (d) make no change in the consumption of both

25. Compared to cash gifts, noncash gifts are preferred

- (a) more because they decrease total utility
- (b) more because they increase total utility
- (c) less because they increase total utility
- (d) less because they decrease total utility

■ PROBLEMS

1. Assume that Harriet Palmer finds only three goods, A, B, and C, for sale and that the amounts of utility that their consumption will yield her are as shown in the table below. Compute the marginal utilities for successive units of A, B, and C and enter them in the appropriate columns.

Good A			Good B			Good C		
Quantity	Total utility	Marginal utility	Quantity	Total utility	Marginal utility	Quantity	Total utility	Marginal utility
1	21	_____	1	7	_____	1	23	_____
2	41	_____	2	13	_____	2	40	_____
3	59	_____	3	18	_____	3	52	_____
4	74	_____	4	22	_____	4	60	_____
5	85	_____	5	25	_____	5	65	_____
6	91	_____	6	27	_____	6	68	_____
7	91	_____	7	28.2	_____	7	70	_____

2. Using the marginal-utility data for goods A, B, and C that you obtained in Problem 1, assume that the prices of A, B, and C are \$5, \$1, and \$4, respectively and that Palmer has an income of \$37 to spend.

a. Complete the table below by computing the *marginal utility per dollar* for successive units of A, B, and C.

Good A		Good B		Good C	
Quantity	Marginal utility per dollar	Quantity	Marginal utility per dollar	Quantity	Marginal utility per dollar
1	_____	1	_____	1	_____
2	_____	2	_____	2	_____
3	_____	3	_____	3	_____
4	_____	4	_____	4	_____
5	_____	5	_____	5	_____
6	_____	6	_____	6	_____
7	_____	7	_____	7	_____

b. Palmer would *not* buy 4 units of A, 1 unit of B, and 4 units of C because _____.

c. Palmer would *not* buy 6 units of A, 7 units of B, and 4 units of C because _____.

d. When Palmer is maximizing her utility, she will buy _____ units of A, _____ units of B, _____ units of C; her total utility will be _____, and the marginal utility of the last dollar spent on each good will be _____.

e. If Palmer's income increased by \$1, she would spend it on good _____, assuming she can buy fractions of a unit of a good, because _____.

3. Sam Thompson has an income of \$36 to spend each week. The only two goods he is interested in purchasing are H and J. The marginal-utility schedules for these two goods are shown in the table at the bottom of the page.

The price of J does not change from week to week and is \$4. The marginal utility per dollar from J is also shown in the table. But the price of H varies from one week to the next. The marginal utilities per dollar from H when the prices of H are \$6, \$4, \$3, \$2, and \$1.50 are shown in the table.

Good H							Good J	
Quantity	MU	MU/\$6	MU/\$4	MU/\$3	MU/\$2	MU/\$1.50	MU	MU/\$4
1	45	7.5	11.25	15	22.5	30	40	10
2	30	5	7.5	20	15	20	36	9
3	20	3.33	5	6.67	10	13.33	32	8
4	15	2.5	3.75	5	7.5	10	28	7
5	12	2	3	4	6	8	24	6
6	10	1.67	2.5	3.33	5	6.67	20	5
7	9	1.5	2.25	3	4.5	6	16	4
8	7.5	1.25	1.88	2.5	3.75	5	12	3

- a. Complete the table below to show how much of H Thompson will buy each week at each of the five possible prices of H.

Price of H	Quantity of H demanded
\$6.00	_____
4.00	_____
3.00	_____
2.00	_____
1.50	_____

- b. What is the table you completed in part a called?

4. Assume that a consumer can purchase only two goods: *R* (recreation) and *M* (material goods). The market price of *R* is \$2 and the market price of *M* is \$1. The consumer spends all her income in such a way that the marginal utility of the last unit of *R* she buys is 12 and the marginal utility of the last unit of *M* she buys is 6.

- a. If we ignore the time it takes to consume *R* and *M*, is the consumer maximizing the total utility she obtains

from the two goods? _____

- b. Suppose it takes 4 hours to consume each unit of *R*, 1 hour to consume each unit of *M*, and the consumer can earn \$2 an hour when she works.

(1) The full price of a unit of *R* is \$ _____.

(2) The full price of a unit of *M* is \$ _____.

- c. If we take into account the full price of each of the commodities, is the consumer maximizing her total utility?

_____ How do you know this? _____

- d. If the consumer is not maximizing her utility, should she increase her consumption of *R* or of *M*? _____

Why should she do this? _____

- e. Will she use more or less of her time for consuming *R*? _____

■ SHORT ANSWER AND ESSAY QUESTIONS

1. Define the law of diminishing marginal utility and give an example of it in practice.
2. Why is utility a "subjective concept"?
3. How does the subjective nature of utility limit the practical usefulness of the marginal-utility theory of consumer behavior?
4. Define total utility and marginal utility. What is the relationship between total utility and marginal utility?
5. What is the law of diminishing marginal utility?
6. What essential assumptions are made about consumers and the nature of goods and services in developing the marginal-utility theory of consumer behavior?
7. What is meant by "budget constraint"?

8. When is the consumer in equilibrium and maximizing total utility? Explain why any deviation from this equilibrium will decrease the consumer's total utility.

9. Why must the amounts of extra utility derived from differently priced goods mean that marginal utility must be put on a per-dollar-spent basis? Give an example.

10. How can saving be incorporated into the utility-maximizing analysis?

11. Give and explain an algebraic restatement of the utility-maximizing rule.

12. Using the marginal-utility theory of consumer behavior, explain how an individual's demand schedule for a particular consumer good can be obtained.

13. Why does the demand schedule that is based on the marginal-utility theory almost invariably result in an inverse or negative relationship between price and quantity demanded?

14. What insights does the utility-maximization model provide about the income and substitution effects from a price decline?

15. What aspects of the theory of consumer behavior explain why consumers started buying iPods in larger numbers instead of portable CD players in the past decade?

16. Why does water have a lower price than diamonds despite the fact that water is more useful than diamonds?

17. Explain how a consumer might determine the value of his or her time. How does the value of time affect the full price the consumer pays for a good or service?

18. What does taking time into account explain that the traditional approach to consumer behavior does not explain?

19. How does the way that we pay for goods and services affect the quantity purchased? Explain by using medical care as an example.

20. Why are noncash gifts less preferred than cash gifts?

ANSWERS

Chapter 7 Consumer Behavior

FILL-IN QUESTIONS

1. diminishing marginal utility
2. total, marginal
3. a subjective, is not
4. decrease
5. positive, zero
6. rational, preferences
7. limited, scarce, prices
8. last, the same
9. increase, decrease
10. a. MU of product X; b. price of X; c. MU of product Y; d. price of Y
11. a. the income of the consumer; b. the prices of other products

12. consistent, more
13. increase, decrease, income
14. more, lower, less, more, substitution
15. decreased, increased
16. marginal, marginal, total, total
17. time, limited, equal to, price, time
18. cost, more
19. more, positive, zero
20. less, less

TRUE-FALSE QUESTIONS

- | | | |
|-------------------|--------------------|--------------------|
| 1. T, p. 135 | 10. T, pp. 137-138 | 19. F, pp. 142-143 |
| 2. T, p. 135 | 11. F, pp. 137-138 | 20. F, pp. 143-144 |
| 3. T, pp. 135-137 | 12. F, p. 138 | 21. T, pp. 143-144 |
| 4. F, pp. 135-137 | 13. F, pp. 138-139 | 22. F, pp. 143-144 |
| 5. T, p. 135 | 14. F, pp. 138-139 | 23. T, p. 144 |
| 6. F, p. 137 | 15. T, pp. 140-141 | 24. T, p. 144 |
| 7. T, pp. 135-137 | 16. F, pp. 140-141 | 25. F, p. 144 |
| 8. T, pp. 137-138 | 17. T, pp. 140-141 | |
| 9. T, pp. 137-138 | 18. F, pp. 140-141 | |

MULTIPLE-CHOICE QUESTIONS

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|-------------------|--------------------|--------------------|
| 1. c, p. 135 | 10. c, pp. 138-139 | 19. c, p. 140 |
| 2. b, p. 135 | 11. a, pp. 138-139 | 20. b, pp. 140-141 |
| 3. c, pp. 135-137 | 12. b, pp. 139-140 | 21. c, pp. 140-141 |
| 4. c, pp. 135-137 | 13. c, pp. 139-140 | 22. b, pp. 142-143 |
| 5. d, pp. 135-137 | 14. b, pp. 139-140 | 23. b, pp. 143-144 |
| 6. c, pp. 135-137 | 15. a, pp. 139-140 | 24. b, pp. 143-144 |
| 7. c, pp. 135-137 | 16. b, pp. 135-137 | 25. d, p. 144 |
| 8. b, pp. 137-138 | 17. c, pp. 136-137 | |
| 9. c, pp. 138-139 | 18. c, pp. 135-137 | |

PROBLEMS

1. marginal utility of good A: 21, 20, 18, 15, 11, 6, 0; marginal utility of good B: 7, 6, 5, 4, 3, 2, 1.2; marginal utility of good C: 23, 17, 12, 8, 5, 3, 2

2. a. marginal utility per dollar of good A: 4.2, 4, 3.6, 3, 2.2, 1.2, 0; marginal utility per dollar of good B: 7, 6, 5, 4, 3, 2, 1.2; marginal utility of good C: 5.75, 4.25, 3, 2, 1.25, .75, .5; b. the marginal utility per dollar spent on good B (7) is greater than the marginal utility per dollar spent on good A (3), and the latter is greater than the marginal utility per dollar spent on good C (2); c. she would be spending more than her \$37 income; d. 4, 5, 3, 151, 3; e. A, she would obtain the greatest marginal utility for her dollar (2.2)

3. a. 2, 3, 4, 6, 8; b. the demand schedule (for good H)
4. a. yes; b. (1) 10, (2) 3; c. no, the marginal utility to price ratios are not the same for the two goods; d. of M, because its MU/P ratio is greater; e. less

SHORT ANSWER AND ESSAY QUESTIONS

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|----------------|-----------------|-----------------|
| 1. p. 135 | 8. pp. 138-139 | 15. pp. 141-142 |
| 2. p. 135 | 9. p. 138 | 16. pp. 142-143 |
| 3. p. 135 | 10. pp. 138-139 | 17. pp. 143-144 |
| 4. pp. 135-137 | 11. pp. 139-140 | 18. pp. 143-144 |
| 5. p. 135 | 12. p. 140 | 19. p. 144 |
| 6. pp. 137-138 | 13. p. 140 | 20. p. 144 |
| 7. p. 137 | 14. pp. 140-141 | |

